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WINTER OATS IN THE COTTON BELT.

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The value of a winter grain crop in the South was never more apparent than now. With cotton low in price, farmers are looking for crops that can be sold for cash or which will lessen their expenses by supplying feed for work stock. Wheat, oats, and barley are all readily salable locally and in the northern markets, while at present there is also a considerable demand for export. All these grains may be fed to live stock, though both the grain and straw of oats are to be preferred to similar products of wheat or barley for this latter purpose. The oat crop also succeeds rather better than either of the other grains in the South Atlantic and Gulf States, except perhaps on the heavy clay soils of the Piedmont area (western North and South Carolina and northern Georgia and Alabama).

Besides furnishing grain and forage for feeding, the fall-sown cereals provide a cover crop for the soil, thus preventing washing and leaching, and furnish pasture during the late fall and early spring months. While it is now too late to sow oats to supply pasture this fall, the crop may be sown safely for grain in November in eastern or southern North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and southern Texas. Many experiments have shown that October or November seeding will produce far better yields of oats in the South Atlantic and Gulf States than sowing during the winter or early spring.

THE BEST SOILS FOR OATS.

Oats succeed best on clay or clay-loam soils which are well filled with decaying vegetable matter. The crop grows well on such soils because they do not dry out readily, for the oat plant requires plenty of water for its best growth. On the other hand, the land should be well drained, as no cereal will grow well on water-logged soil. While clay-loam soils are best, good crops of oats may be grown on fertile sandy loam or sandy soil. The yield of grain on such soils, however, is usually less than on the clays and clay loams.

NOTE.—Intended for farmers in the cotton belt who desire to diversify their farming because of the economic crisis which adversely affects the cotton crop at this time.

PREPARATION OF THE LAND.

Oats can best be sown on land on which a cultivated crop, such as corn, cotton, or cowpeas, was grown during the preceding summer. As immediate seeding is essential, it is better not to plow the land, but to prepare the seed bed with the disk harrow, spring-tooth harrow, or any other tool with which the land can be gone over rapidly and the surface 2 or 3 inches worked into a loose and mellow condition. Oats grow best on a soil which, while fairly loose on the surface, is firm beneath, so that a seed bed prepared in the manner indicated is much more likely to produce a successful crop than one which has been freshly plowed and has not had time to settle.

If there is much trash on the land, such as weeds or a heavy growth of cotton or cornstalks, it may be necessary to remove at least a portion of this material in order to make a good seed bed. If possible, however, it is better to work the trash into the soil with a stalk cutter and a disk harrow if these tools are available.

THE FERTILIZERS TO USE.

The kind and amount of fertilizer to use of course depend on the fertility of the land and the fertilizer which was applied to the preceding crop of corn or cotton. If the land is fertile enough to produce good yields of either of these crops, or if it was heavily fertilized the preceding spring, the use of more fertilizer just before sowing the oats is not absolutely necessary. On the poorer soils applications of 200 to 300 pounds of acid phosphate and 30 to 50 pounds of muriate of potash per acre may usually be made with profit. If nitrogen is added, it should be applied in the form of a top-dressing of nitrate of soda about the time growth starts in the spring.

GETTING THE SEED READY TO SOW.

Good, plump, well-cleaned seed of a rustproof variety should be used. It is better to use that which was grown in the immediate locality, or at least within 100 or 200 miles, than seed shipped from a greater distance. This is particularly true of winter oats, as this crop is grown only in the Southern States and seed obtained from the North is almost certain to be of varieties not suitable for fall seeding. If home-grown or local seed is used it should be cleaned and graded as thoroughly as possible. If a fanning mill is not available for this work, much chaff, light grain, and weed seeds may be removed by pouring the seed back and forth from one tub or bushel measure to another in a strong wind.

If there is time before sowing, it is desirable to treat the seed for smut with a solution made by adding a pint (1 pound) of commercial formaldehyde to 50 gallons of water. Formaldehyde may

usually be obtained readily from any drug store. The easiest way to treat the grain is to spread it out on a smooth barn floor, a tight wagon box, or a large piece of canvas, and sprinkle the solution on it from an ordinary watering pot. After the grain on the surface is wet, the pile should be shoveled over so that the wet grain is mixed with the dry grain beneath, repeating this operation until all the grain is moist. The seed should then be shoveled into a pile and covered with canvas, burlap, or grain sacks, and allowed to remain for several hours. It may then be spread out in a thin layer to dry before seeding, or the seed may be sown at once. If the seed is sown while still moist, the rate of seeding either by measure or by weight should be increased, to allow for the water taken up by the grain.

THE CHOICE OF VARIETIES.

The best varieties for fall seeding are Red Rustproof and Winter Turf. The Red Rustproof is the variety most commonly grown in the Southern States, either for fall or spring seeding. It is rather less hardy than Winter Turf, but matures at least 10 days earlier and usually produces heavier yields of grain. The Appler, Bancroft, Cook, and Lawson are all strains or selections of the Red Rustproof which are locally grown in the South. The Fulghum is a new variety which has lately come into prominence in Georgia and some of the adjoining States because of its earliness and high yields. It matures several days earlier than Red Rustproof and thus lengthens the season for growing cowpeas or other crops which may be sown after the oats are harvested. The Winter Turf is the hardiest of all winter oats, but usually rusts badly in the extreme South and it is late in maturing, and for these reasons the yield of grain is usually not heavy.

HOW TO SOW FOR BEST RESULTS.

The best method of sowing oats is with a drill, either the ordinary type of grain drill or a special type which leaves the grain in a deep furrow. This latter method has been particularly recommended in Georgia and is probably to be preferred for late seeding anywhere in the South. The ordinary cotton planter may also be used, running the furrows from 18 to 24 inches apart and sowing the seed rather thickly in the row. The advantage of the specially devised open-furrow drill over the ordinary cotton drill is that several rows may be sown at a time and that consequently the work may be finished much more quickly. Drilling requires less seed than broadcast seeding, covers the seed more uniformly, and produces better stands and larger yields.

If no drill is available, the seed may be sown broadcast on a well-prepared seed bed, either by hand or with one of the machines made specially for this purpose. Broadcast seeders, however, are but little known or used in the South. If the sowing is done by hand, the work is made much easier if the sower stands in the rear end of a wagon driven slowly back and forth across the field at the necessary intervals than if he walks and carries a heavy bag of grain. After sowing, the seed should be covered with the harrow and roller. The latter tool, however, should not be used on soils that are likely to run together and bake, particularly when such soils are wet.

The depth to which the seed should be covered varies with the nature of the soil and the amount of moisture it contains at seeding time. On clay or clay-loam soils which are fairly moist and in good condition, covering to a depth of 1 inch is sufficient. On sandy soils or those which are rather dry, the seed should be sown at a depth of $1\frac{1}{2}$ to 2 inches.

HOW MUCH TO SOW.

The usual rate of seeding winter oats is from 2 to 3 bushels to the acre. As the seed of the Red Rustproof oat is large, at least $2\frac{1}{2}$ bushels of this variety should be sown. Red Rustproof kernels have a tendency to stick together in the drill and for that reason do not feed freely; hence, setting the drill at the rate of 3 to $3\frac{1}{2}$ bushels is necessary to sow as much as $2\frac{1}{2}$ bushels. When sowing broadcast, from $2\frac{1}{2}$ to 3 bushels should be used. The kernels of the Winter Turf are smaller than those of the Red Rustproof, while the plants are more hardy and stool more freely; hence, much less seed is required. Of this variety $1\frac{1}{2}$ to 2 bushels are required when the seed is sown with a drill or $2\frac{1}{2}$ bushels when sown broadcast. In any case more seed should be used for late than for early seeding.

WHEN TO SOW.

Early seeding is desirable if the best yields of winter oats are to be obtained. In the northern half of the Gulf States and in eastern North and South Carolina the seed may be sown in early November with safety, while nearer the coast sowing during the latter half of November or early in December is usually satisfactory. In no case should sowing be delayed until after December 15 if it is at all possible to get the seed into the ground in good condition before that date.